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A

PROBATIONARY ESSAY

ON

CARBUNCLE.

J. Chapman Child Esq
from his friend
The Author

A
PROBATIONARY ESSAY
ON
CARBUNCLE,
SUBMITTED,
BY THE AUTHORITY OF THE PRESIDENT AND HIS COUNCIL,
TO THE EXAMINATION OF THE
Royal College of Surgeons of Edinburgh,
WHEN CANDIDATE
FOR ADMISSION INTO THEIR BODY,
IN CONFORMITY TO THEIR REGULATIONS RESPECTING THE
ADMISSION OF ORDINARY FELLOWS.

BY
ANDREW DOUGLAS MACLAGAN,
SURGEON,
PRESIDENT OF THE ROYAL MEDICAL AND PLINIAN SOCIETIES
OF EDINBURGH.

Causa latet, vis est notissima. OVID.

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TO

DAVID MACLAGAN, M.D., F.R. S.E.

PHYSICIAN TO THE FORCES, &c.

FORMERLY PRESIDENT OF THE ROYAL COLLEGE OF SURGEONS,

This Essay is Dedicated, with every feeling of respect and esteem, by his affectionate Son ; who, while enjoying the advantages of his Father's assistance and advice in the prosecution of his Professional Studies, has not forgotten the kindness and indulgence extended to him in his boyish years.



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TO

JOHN THOMSON, M.D., F.R.S.L. & ED.

PROFESSOR OF MEDICINE AND PATHOLOGY,

AND

J. W. TURNER, ESQ. F.R.S.E., F.R.C.S.E.

PROFESSOR OF MEDICINE AND SURGERY IN THE UNIVERSITY OF
EDINBURGH ;

THESE PAGES ARE ALSO INSCRIBED BY THE

AUTHOR,

IN TESTIMONY OF RESPECT FOR THEM AS HIS INSTRUCTORS,

AND GRATITUDE TO THEM AS HIS FRIENDS.

ON

CARBUNCLE.

THE term Carbuncle or Anthrax * has been applied to a circumscribed inflammatory tumour seated in the cellular membrane, attended during its progress with considerable constitutional irritation, and usually terminating in sloughing of the affected part.

Three distinct species of the disease are now generally recognised by authors.

* In PETER LOWE'S " Discourse of the whole Art of Chyrurgery, Glasgow, 1612," I find the following exordium to the chapter on Anthrax or Carbuncle. " There is small difference between Anthrax and Carbuncle, saving that Anthrax is the Greeke word, and Carbuncle the Latine, and is so called because it burneth the place where it is like unto coales. Carbuncle is defined to be a pustule inflamed, black-burning the place. It is sore with many blisters about it, as if it were burned with fire or water."

I. Simple Idiopathic Carbuncle.

II. The Pestilential Carbuncle, or that which appears as a symptom of the plague, and in some malignant fevers.

III. The Epizootic Carbuncle, or that disease described by many of the French writers, under the names of Pustule or Charbon Maligne.

My object in the following Essay is to describe Carbuncle as a local disease, and to give an account of the constitutional affection, merely in as far as it is symptomatic of, or secondary to, the local injury.

I. *Simple Carbuncle*.—The affection generally commences with a sharp pain and sense of burning heat in some part of the skin, where there soon appears a small tumour of a purple colour, surrounded by a hard base, attended by a deeper seated pain, and most annoying itching.

As the disease advances, the swelling and hardness increase, and the skin over and around the tumour acquires a dark red or purple colour, which is deepest towards the centre of the swelling. At this point a small vesicle about the size of a pea soon shews itself, which is generally burst by the patient in his attempts to allay by scratching the sensation of itching; and beneath this vesicle a small ulceration is found, discharging a thin yellowish fetid

ichor, generally extending through the true skin, and disclosing the cellular membrane converted into a whitish or ash-grey coloured slough. Numerous smaller vesicles also appear on the whole surface of the tumour, which burst and present similar appearances.

If the disease proceeds to a favourable termination, the slough, either by the efforts of nature or the assistance of art, is discharged, and there remains a large granulating cavity, which speedily contracts and heals.

Such is a general description of the ordinary progress of the local symptoms of Carbuncle.

The disease throughout its course is attended with constitutional symptoms, in the form of a fever, which assumes more of the inflammatory or typhoid type, according to the age and constitution of the patient and other collateral circumstances.

The less recent writers on surgery were always careful to draw a marked distinction betwixt Anthrax or Carbuncle, and Furunculus or Boil, but it is now generally allowed that any difference between these two affections is only in degree; and indeed, if we trace their pathology, we shall find that, strictly speaking, Phlegmon, Boil, and Carbuncle, may all be classed together as inflammations of the cellular

texture varying only as regards their termination; in the first case in simple suppuration, in the next in suppuration attended by the separation of a small slough, and in the last in complete sphacelus or mortification of the affected part.

RICHTER * describes a boil as being in many cases like an inflamed encysted tumour, and compares the sloughing cellular membrane to a cyst enclosing the pus,—thus bringing it nearly to the nature of a circumscribed abscess, with its lining membrane of coagulable lymph; and in speaking of Carbuncle, he defines Anthrax to be a malignant boil which speedily ends in mortification, and is sometimes attended with much danger.

The chief peculiarities by which Boil and Carbuncle were supposed to be distinguished, consist in the former discharging some pus along with the sloughing cellular membrane, and in its being a milder and more tractable form of disease than the latter.

The Epinyctis and Terminthus described by WISEMAN †, appear to have been two varieties of boil differing but little from one another, and ap-

* Anfangsgrunde der Wundartzneykunst. Goett. 1799.

† Chirurgical Treatises, by RICHARD WISEMAN. 1676.

parently intermediate betwixt the boil and carbuncle of authors.

The Epinyctis is described as being about the size of a lupin seed, of a dusky red, but sometimes of a livid or pale colour, with great pain and inflammation, discharging first a sanies and then a bloody matter.

The Terminthus is described as being of smaller size, with nearly the same characters, and terminating by sloughing. From these, and similar observations, it would appear, that, as regards local symptoms, Boil and Carbuncle differ only in the intensity of the inflammatory action, and that they are essentially similar in nature.

Most systematic writers have made a division of Carbuncles into Malignant and Benign ; the latter term being applied to all forms, however severe, of the idiopathic kind. Baron BOYER* has followed this arrangement, but under the head of Malignant Carbuncle has included two species, the pestilential, and non-pestilential ;—by the former meaning that form of carbuncle which occurs in cases of plague and of bad typhous fever ; and by the latter, idiopathic carbuncle of a severe form, attended with

* BOYER, *Maladies Chirurgicales*, tom. .

typhoid symptomatic fever. But, upon the whole, it will be found better to adhere to the division into Simple or Idiopathic, and Pestilential or Symptomatic, restricting the latter term to the Carbuncle of the plague and typhus.

Anthrax seems to consist essentially of an inflammation of the cellular tissue of a gangrenous character, the affection of the skin being of a secondary nature, and not being always proportionate to the extent of disease in the cellular membrane. Indeed, it has always been a remark with practical surgeons, that it is far from easy to ascertain from the state of the skin what the amount of mischief is which the disease may be doing in the cellular tissue. Perhaps the best means we have of ascertaining the extent of the disease, is to feel for the termination of the circumscribed hardness which surrounds the base of the swelling, as it generally marks the spot where nature, in her endeavours to check the progress of the disease, has erected a barrier of lymph between the living and dead parts.

The first appearance of the destructive process having attacked the skin, is the formation of numerous vesicles on the tumour. In many cases the ulcerations are so numerous, that the surface of the tumour bears a strong resemblance to a portion of

honeycomb. After this the progress of the disease is simply that of the separation of a slough, which process goes on with greater or less rapidity, according to the severity of the attack, the remedial measures employed, and the strength of the patient's constitution.

Carbuncle may have its seat in any part of the body. It appears most commonly as a single tumour, but in some cases several arise at once. It frequently occurs between the shoulders, and often on the sides or front of the neck, in which latter situation it is generally a more severe affection than when situated on the trunk or extremities. In the more common cases, the tumour acquires the size of a large orange or small melon; but it has sometimes been observed to be as large as an ordinary dinner plate.—(RICHTER, *op. cit.*)

Of the causes of Carbuncle little or nothing is known. There does not seem to be any habit of body or peculiarity of constitution necessarily giving rise to it, though it appears to occur most frequently in persons of a debilitated constitution, or in those whose health has been impaired by voluptuous living. This is a remark that has long been made by practical writers, and coincides with an observation of my respected teacher Professor THOMSON, who remarked in his lectures on General Pathology, that

he had frequently had occasion to observe the disease in persons of a gouty constitution.

The disease which BOYER has described under the name of Malignant Non-pestilential Carbuncle, and which appears to be a severe idiopathic anthrax, attended with typhoid symptoms, has been observed by that eminent surgeon to prevail epidemically, particularly in hot seasons, and to attack children more readily than adults. I have also heard Dr THOMSON remark, that some of his professional correspondents in India had observed something like an epidemic prevalence of Carbuncle in that country.

The constitutional symptoms which attend carbuncle are usually of a severe kind, whether they assume the inflammatory or typhoid type. There does not appear to be any corresponding relation established by authors between a particular form of local disease and the kind of constitutional affection ; and we may consider the distinctions of Carbuncle into benign and malignant, as indicating rather varieties in the degree of intensity, than any specific difference in the nature of the diseased action.

The severity of Carbuncle and danger to life arising from it, depend chiefly upon the nature and degree of the constitutional symptoms, more particu-

larly as these are influenced by the size or number of the local affections.

If, in the local appearances, we cannot find any specific difference to account for the varied, or rather opposite, types of the symptomatic fever, we shall probably find the circumstances fully explained by a reference to the habit of body, general health, or previous manner of life of our patient. If the subject of the disease be young and plethoric, the fever will generally assume the inflammatory type; but if, as is too often the case, the disease occurs in a person advanced in years, or in one whose constitution has been shattered by his previous habits of life, the fever, even from the commencement, may have more or less of the typhoid character.

DELPECH * says, that the fever appears under the form of a quotidian remittent, by which, I presume, he means a symptomatic fever, with a daily increase of the febrile symptoms, which we know frequently takes place in all symptomatic fevers, and generally towards evening.

But although the fever may be of a well-marked inflammatory type at the commencement, it will be well, in reference to practice, to bear in mind the frequency of the occurrence of typhoid symptoms

* Delpech, *Maladies Chirurgicales*, tom. i. p. 59.

during the progress of the disease, and particularly towards the later periods.

Mr PEARSON *, besides the more general symptoms of typhoid fever, mentions, that in some cases a miliary and petechial eruption had occurred in the course of the disease. As these appearances in the course of symptomatic fevers are not common, there seems reason to suspect that the local affection had come on as a complication of an idiopathic typhoid fever of a bad character ; and Mr PEARSON himself says, “ Anthrax is assigned by authors as a very common appearance in pestilential diseases ; and where there is no reason to suspect the plague as a cause, that state of the system is commonly present which is characteristic of putrid fever.”

In some cases, there appears to be a tendency to the formation of Carbuncles, intermixed with simple boils, all over the body ; for “ sometimes we see, towards the end of the malady, a new eruption of large pimples, which suppurate, whilst occasionally some of them become true Carbuncles †.”

In the treatment of simple Carbuncle, as observed by Professor SAMUEL COOPER, “ the duty of the surgeon may be described in a few words.”

* PEARSON. Principles of Surgery, p. 147-8.

† Encyclopédie Méthodique, part Chirurg. art. Anthrax.

The local treatment consists essentially in endeavouring to procure, as speedily as possible, the separation of the sloughs; whilst the constitutional affection is to be combated by a treatment corresponding to the nature of the symptoms.

In the early stages of the complaint, occurring in a young or plethoric subject with a full pulse, bloodletting may be resorted to; but caution in reference to after consequences is required in the employment of this powerful remedy, and we must bear in mind the debility which frequently occurs towards the termination of the disease.

This doctrine would certainly be dangerous if applied to all inflammatory diseases, in many of which the after debility is proportionate to the previous irritation, and may often be greatly prevented by the early and free use of depletory measures. But here, where a large slough must separate, and an extensive suppuration necessarily follow, the advantages and disadvantages of bloodletting should be well weighed before its employment is had recourse to.

Most commonly, instead of depletory measures, those of a contrary kind may be called for; and instead of the abstraction of blood, the administration of stimulants may be necessary. In most cases where the antiphlogistic treatment is considered ne-

cessary, the use of antimonials, laxatives and low diet will suffice. Many cases, however, are on record, where a violent aggravation of the disease took place under this treatment, and where the amelioration was rapid on the employment of stimulant remedies *.

But if caution be required in the employment of the lancet, it is equally demanded in the use of stimuli, an excess of which may defeat the object of their administration, by aggravating the local disease ; indeed, in the first stage of the affection, our measures may perhaps be equally successful, if confined to the refraining from depletion, as in the resorting to stimulants. In many cases, however, we may find it necessary to administer wine, even before the separation of the slough has commenced ; and too often we shall find, that, notwithstanding the use of wine, and the employment of bark, camphor, and other boasted remedies, the typhoid fever will prove fatal. The evacuation of the bowels should never be neglected, whatever the type of the fever may be. In typhoid cases, of course, the mildest laxatives should be used. Both in conjunction with the stimulant treatment, and even in cases where bloodletting has been employed, the

* New York Med. and Phys. Journal, vol. iii.

intense burning pain may be so severe as to require the use of an opiate.

In the local treatment of Carbuncle, it may be useful, in the early stages of the disease, to apply a few leeches over the tumour, chiefly with a view to moderate the pain; for it will seldom, if ever, be found practicable to affect the cure of a Carbuncle by resolution after it is fairly formed.

No treatment seems to be of more use, in the first place, than the application and frequent renewal of large emollient poultices; but more energetic means must speedily be resorted to.

The great object to be held in view is to procure, as speedily as possible, the separation of the sloughs; and, for this purpose, the early employment of free incisions is the practice most generally adopted by surgeons, particularly in Britain. These incisions should be carried to such a depth as fairly to divide the slough, but not to penetrate into the subjacent sound parts. For a Carbuncle of moderate size, two incisions, reaching from side to side of the tumour, and intersecting each other at right angles, will generally be sufficient. These means must be adopted promptly and early. It will not do for the surgeon to delay making his incisions in the hopes of being able to subdue the disease by milder means.

The slough, separated from the surrounding parts, and totally deprived of vitality, resembling in no small degree, a sponge soaked in an irritating fluid, can only act as a foreign body; and, till it is removed, or a free exit given to it, no diminution of the local affection, or abatement of the constitutional symptoms, can be looked for. In many cases, it is necessary to cut off portions of the undermined skin to afford a free exit for this slough.

DELPECH * conceives that the incisions can be of use only when the gangrenous inflammation shall have been bounded by other means, and that they act by what he calls adding more power to the local reaction in the affected parts; but he adds that it is the opinion of Baron DUPUYTREN, that early incisions will check the gangrene, by giving relief to the tense and strangulated state of the parts. This, I believe, is in accordance with the experience of most British surgeons of the present day. The patient often experiences sudden and great relief from the incisions on this account †.

The actual cautery, and the powerful caustics formerly so much reputed in the treatment of Car-

* Delpech, *Maladies Chirurgicales*, tom. i, p. 61.

† Vide a case by Dr JONES, in vol. i. of *Transactions of College of Physicians of Philadelphia*.

buncle, have, particularly in England, been almost entirely superseded by the certainly less painful, and equally, if not more, efficacious practice of incision. In America, considerable attention seems to have been paid to other remedial means. The practice of applying large blisters over the tumour, not only in the inflammatory stage, but after the state of sloughing has come on, and the skin has assumed the honeycomb appearance, was first introduced by Dr PHYSICK, of New York. A case in which this plan of treatment was followed by a successful result, is related by Dr BECK *. The application of the first blister gave immediate relief, and the inflammation assumed a more healthy character; the vesicatory was repeated two days afterwards with more manifest success, the sloughs soon separated, and the sore healed in six weeks. In his observations on the above case, Dr BECK remarks that Dr PHYSICK has since abandoned the use of blisters, and gives a decided preference to the use of caustics. Reference is made by Mr SAMUEL COOPER, in the last edition of his Surgical Dictionary, to a case healed by caustics by Dr PHYSICK †, of which the latter gentleman has published

* New York Medical and Physical Journal, vol. ii.

† Philadelphia Journal of Medical and Physical Science, vol. iii.

an account, but I regret that I have been unable to obtain a perusal of the paper *.

Dr HOSACK relates a case in which the remedies consisted of poultices rendered stimulant by the admixture of a quantity of spirits, along with internal tonics and stimulants. No incisions were made; but, from Dr HOSACK's narrative, there seems to be room for doubt as to the true nature of the affection; for the discharge is said to have been very healthy pus, and there was no sloughing of the cellular membrane. Indeed, upon the whole, the case seems to have been rather one of boils (for several tumours appeared though one only assumed a violent form), occurring in the debilitated body of an old man of eighty-four *. Other cases, in which the true nature of the disease was less equivocal, have since been treated with success in this manner in America †.

When caustics or the cautery are employed, it may render their action more efficacious, if, before their application, incisions be made a little way into the dead and insensible slough, or if portions of it be picked away with the forceps.

The extirpation of the tumour, which was once

* Edin. Med. and Surg. Journ. vol. vi.

† New York Med. and Phys. Journ. vol. vi.

practised, has now been entirely abandoned, as it is found to be a very painful method of cure, and to possess no advantages over the more simple means. Of all these remedies the incisions seem to be the least painful, and certainly not the least efficacious, in causing the separation of the sloughs. Advantage will be obtained after the incisions have been made in applying to the sore some stimulant application, such as the common hot-dressing, composed of resinous ointment and turpentine.

After the sloughs have come away, and a raw granulating but healthy sore is left, the usual local remedies, combined with a nutrient and generous regimen, will generally bring the case to a successful issue in a few weeks.

The next species of Carbuncle of which I purpose to give a short account, is that symptomatic affection which occurs in the plague, and other malignant typhoid disorders.

In the plague, the Carbuncle shews itself along with the buboes and petechiæ which generally occur in this disorder; and, according to the observations of Dr RUSSELL *, is very rarely unaccompanied by some of these eruptions. Dr RUSSELL in-

* RUSSELL on the Plague. 4to.

forms us that Carbuncles appear in nearly one-third of the cases of plague ; but that, of 2700 cases which he observed, only 85 had Carbuncles, without buboes or petechiæ, and many of the cases were seen at a period of the disease when it was not improbable that buboes or petechiæ might afterwards shew themselves. Dr RUSSELL observed, that they were least common in winter, but began to appear generally about May, were most frequent in the heat of summer, and seemed to decline again towards autumn.

In perusing the various works of the authors who have written on the plague, we cannot avoid being struck with the discrepancies which occur in their descriptions of the various species of Carbuncle which shew themselves, and notwithstanding the high authority of some writers, we shall find it difficult to resist the conclusion that the various species which have been described are merely varieties, depending on collateral circumstances. To use the words of Dr RUSSELL, “ the same eruption appears under different forms, as it happens to be viewed in its different stages, and hence perhaps the varieties of the Carbuncle have been erroneously multiplied*.” Dr RUSSELL enumerates five species which he thinks he has observed, all varying more or less in

* Op. cit. p. 121.

the degree of inflammation of their base, and in the extent and rapidity of their sloughing ; but he allows that they are not to be distinguished after the formation of the slough. The differences which he has pointed out at length in his extremely valuable treatise, are too minute to demand or admit of being here noticed in detail.

In some of the cases observed by Dr RUSSELL, two or three Carbuncles only appeared, whilst in others as many as twenty or thirty shewed themselves at once. The usual size of the tumours seldom exceeded that of a horse bean, and the description of many of the varieties accords strikingly with that given by WISEMAN, of the *Epinyctis* and *Terminthus*. The character of the sloughing is described as a good deal different from that of the simple Carbuncle. The sloughing seems, in no instance, to have been deep in the cellular membrane, but to have had its principal seat in the true dermoid tissue. It generally began to be formed on the third, fourth, or fifth day, and speedily assumed the appearance of an eschar, produced by the application of caustic to the skin. This appearance is well seen in three delineations in the collection of Professor THOMSON. In cases where recovery took place, the sloughs gradually separated, with a little suppuration, around the edges ; but, in fatal cases,

the eschar remained dry, without any tendency to separate.

No part of the body seems to be exempt from the eruption of these Carbuncles, although they have never been seen on the skin covering the buboes.

VERNY * states that he had seen them on the mucous membrane of the fauces, as is commonly observed of the pustules in cases of small-pox.

The period of the fever at which they occur is very various. RUSSELL never saw them later than the 18th day. In all cases, however, the invasion of the febrile affection precedes the local disease, thus establishing the great difference between the simple and pestilential Carbuncle, that the former is idiopathic, and is the cause of any fever that may occur; whereas the latter is a local disease, symptomatic of the typhoid constitutional disorder.

In the local treatment of the pestilential Carbuncle, it was formerly the custom to apply freely the actual cautery, as appears from the work of Dr HODGES on the Plague of 1665. Such severe treatment, we are called upon by every feeling of humanity to reprobate as at least useless; for why subject a patient who will, in all probability, die of the fever itself in the course of a few days or hours, to such cruel treatment, on account of a local affection

* VERNY, *Traité de la Peste*.

which is neither in itself dangerous, nor the cause of the constitutional disturbance? Fortunately, most late writers agree, that less energetic local treatment is sufficient. Dr RUSSELL informs us, that he did not, in general, require to have recourse even to scarifications. His favourite remedy was a simple emollient poultice, which, with a little stimulant dressing, he found to be the only local applications required.

With regard to the appearance of Carbuncle in typhus fever, little need be said. It is seldom seen, even in the worst cases of typhus admitted into our hospitals; but, according to DELPECH*, when it does occur, it uniformly tends to aggravate the typhoid symptoms. BOYER† states, that when any amelioration follows its eruption, the Carbuncle may be looked on as a sort of critical appearance. He does not, however, state that he ever had seen cases in which this occurred.

There is nothing particular to be remarked as to the treatment in those cases, except, as DELPECH suggests, that it would be better to delay any but the mildest local treatment, for fear of aggravating the sinking condition of our patient.

The third and last form of Carbuncular disease

* DELPECH, *Malad. Chirurg.* loc. cit.

† BOYER, *Maladies Chirurg.* loc. cit.

which remains to be described, is that which has become known to us through the writings of the French [a]uthors, under the name of Charbon, or Pustule Maligne, the Milzbrand of the Germans.

This form of Carbuncle consists of a circumscribed gangrenous affection of the skin and subjacent cellular membrane, usually commencing with a small dark-coloured vesicle, giving way and disclosing a slough of the skin, which rapidly extends to the cellular membrane, and is attended during the course of its progress with constitutional symptoms of a typhoid character.

The earliest descriptions of this disease are those of MM. THOMASSIN, whose essay on this subject divided the prize of the Academy of Dijon in 1780* ; and of ENAUX and CHAUSSIER, 1785 †. Since that time, descriptions of the disease have been given by BAYLE ‡ in 1802 ; and more lately by DELPECH §, BOYER ||, and RAYER ¶. Most of the authors

* *Traitement des Gangrènes en général et du Charbon en particulier.* Berne, 1792.

† *Méthode de traiter les Morsures des Animaux enragés ; suivie d'un précis sur la Pustule Maligne.* Dijon et Paris 1785.

‡ *Considérations sur la Nosologie.* Paris, 1802.

§ *Maladies Chirurgicales.* 1816.

|| *Maladies Chirurgicales.* 1818.

¶ *Traité des Maladies de la Peau.* Paris, 1827.

who have written on the Pustule Maligne, seem to agree in considering it as a disease of a truly contagious nature. It appears, however, to arise spontaneously in cattle and other animals in marshy districts, chiefly during hot weather; and in many provinces of France, particularly Burgundy, Franche Comté, Lorraine, &c. it prevails as an epizootic; but it appears, that in most of the cases in which it has occurred in the human body, it has been made out to have arisen from the application of contagious matter from the bodies of animals so diseased. The doctrine, however, of a specific contagion, is, I think, to be received with caution, inasmuch as the disease has, in some cases, been seen to arise from punctures received in opening the bodies of animals which had not been affected with the disease itself, but which had only been exposed to great fatigue, or other debilitating causes, previous to being slaughtered*.

The disease has been observed to occur most frequently among butchers and others employed in slaughtering the cattle, and in peasants who are engaged in administering remedies to them when diseased.

The affection invariably shews itself on parts of the body which are not covered by clothing, and thus

* Vide Cyclopædia of Practical Medicine, art. Mortification, by Dr CARSWELL.

exposed to the contact of morbiferous matters. The arms, hands, neck, face, and breast, are the usual seats of the disease, and this circumstance furnishes us, at least, with presumptive evidence, that it originates in causes acting from without.

It does not seem to be necessary, for the production of the Pustule, that there should be any cut or puncture, many cases being on record where the disease was caused merely by the blood of the animal falling on the skin of the individual affected. The contagion is generally believed to be capable of being conveyed by dead matters; many cases are known of persons becoming infected from carding the wool, or dressing the hides of the diseased animals; and, according to BOYER, so difficult is the destruction of this contagious matter, that the skin which has been prepared in the usual way, and has been used for domestic purposes, retains, even for some years, the power of propagating the contagion.

M. BAYLE, whose essay I have quoted above, considers the disease, when it affects the human body, as having sometimes an origin independent of contagion. The observations on which he has founded this opinion are rather of a limited extent, particularly when compared with the great mass of evidence collected by other authors, and have been

well commented on by BOYER in his work *Sur les Maladies Chirurgicales*.

M. DAVY LE CHEVRIE has, it appears from the work of BOYER, also seen some cases which would tend to establish the doctrine of BAYLE; and BOYER himself seems inclined, chiefly on the authority of the above mentioned authors, to adopt a similar opinion. But I think that, without denying the possibility of such an occurrence, we may consider the question as to the occasional sporadic origin of the Pustule Maligne as still *sub judice*.

MM. FOURNIER and MERAT of Dijon conceived that the Pustule Maligne might arise from the bite of an insect. However ingenious this supposition may be, we must require some farther evidence before we can admit that a disease, so terrible in its effects as the Pustule Maligne, can arise from the bites of insects alone; but I think we may easily conceive the possibility of an insect conveying morbid matter from an already existing pustule to a healthy person, and giving rise to the usual train of symptoms, without that person being aware that he had been exposed to the contagion. ENAUX and CHAUSSIER, as well as DELPECH and BOYER, although they do not relate any cases in which this was actually observed, state, that it was consistent

with their knowledge, that observations had been made which tended to confirm this opinion.

The disease may likewise be communicated from one person to another, as occurred in the case of a woman who, whilst attending her husband, who was afflicted with Pustule Maligne, touched her face with some of the matter from the vesicles of the pustule, and was speedily attacked with the disorder*. This corresponds with what has been observed in some cases of Erysipelas.

Some of the authors who have written on Pustule Maligne, maintain that the flesh of those animals which die of the disease may be eaten with impunity. To say the least of this, it is rash and dangerous to promulgate such an opinion, for, although some authors may have met with instances in which such meat was eaten, without producing any bad effects, yet there are many more cases on the contrary in support of the fact, that animal matters, both when diseased, and when a certain degree advanced in putrefaction, produce, when eaten, generally dangerous, and often fatal effects; and cases are not wanting in which an eruption of a malignant carbuncular nature has been the result †.

In detailing the symptoms of the Pustule Maligne,

* THOMASSIN, *oper. cit.* p. 30.

† CHRISTISON on Poisons, p. 473.

authors have generally described it as consisting of four periods. In the first, there comes on in some part of the skin an intolerable itching, which attracts the attention of the individual to the spot, where he discovers a small dark-coloured vesicle, which, when it bursts or is opened, discharges a few drops of dirty serum, and discloses a portion of the skin in a state of gangrene. In the second stage, a small hard moveable and painful tumour shews itself, around which an areola is formed, which is little raised above the surrounding skin, and is free from tension. But in the third stage, the gangrenous spot rapidly extends, the swelling around the dark-coloured slough increases, forming a circle of a peculiar nature, having, as described by BOYER, an appearance neither inflammatory nor œdematous, but somewhat resembling emphysema without crackling. I had an opportunity of seeing, a short time ago, in the Clinical Ward of the Royal Infirmary, an appearance corresponding exactly with BOYER's description. It was in the foot of a woman, who died rapidly of a spontaneous spreading gangrene of the lower extremity. It is probably caused by the conjoined occurrence of emphysema and of serous effusion into the cellular membrane. This areola quickly becomes covered with numerous confluent vesicles, which are filled with a turbid serum. In the fourth stage, if

the disease is to terminate favourably, the extension of the gangrene is checked by the appearance of a ring of healthy inflammation, and the slough separates ; but if the result is otherwise, as is frequently the case, the sloughing goes on extending rapidly, and a typhoid fever, of a very malignant type, comes on, which speedily proves fatal.

Such is the history of the symptoms that usually appear in cases of *Pustule Maligne*. The disease runs its course with various degrees of rapidity. Sometimes a fatal result does not occur till after the lapse of several days ; whilst, in others, it supervenes in as short a time as twenty-four or thirty-six hours.

Death from *Pustule Maligne* is more rapid, according to DELPECH, in women and debilitated subjects, than in otherwise healthy men ; and, according to ENAUX and CHAUSSIER, the danger of the disease is in general proportionate to its rapidity. Like erysipelas, it is more dangerous when situated on the head or trunk, than when it occurs on the extremities. When the neck is the seat of disease, it often gives rise to alarming symptoms, from the impediment to the breathing produced by the swelling of the cellular tissue. When it attacks the eyelids, as is very frequently the case, the swelling is enormous, and the sloughing frequently destroys not only the eyelids and the soft parts of the face and

forehead, but frequently disorganizes the ball of the eye itself. Such cases are usually attended with great oppression of the sensorial powers, and typhoid symptoms of an aggravated character.

According to THOMASSIN, dysenteric symptoms are very common in bad cases; and RAYER says, that gastro-intestinal affections are the most common complications in this disease.

The Pustule Maligne may be mistaken for Erysipelas in any part of the body, but particularly when it attacks the upper part of the face. When it is situated near the mouth, it may be mistaken for the disease which occurs chiefly in children, and is known by the name of Cancrum oris. In erysipelas, however, the course of the symptoms is widely different. There is no distinct central vesicle, nor does the singular areola present itself, which is so characteristic of the pustule maligne; neither does sloughing take place in erysipelas till a late stage of the disease, and generally only when it has been preceded by violent inflammatory symptoms. From the cancrum oris it may be at once distinguished by the circumstance, that the cancrum oris commences invariably with an aphthous affection of the mucous membrane, whilst the pustule maligne commences as constantly in the skin. Both diseases, however, agree in one particular, that the gangrenous process may in either extend its

ravages through the whole thickness of the lips or cheeks.

Most authors seem well agreed upon the treatment of Pustule Maligne, particularly as regards the local remedies. As it is to be regarded as a disease of an essentially gangrenous nature, and as the process of sloughing has generally commenced before the surgeon is called to see the case, it is not to be expected that it is to be checked by remedies of a discutient nature. The objects to be held in view, are to remove the slough as speedily as possible, and to protect the surrounding healthy parts from being involved in the disease. This can best be done by incisions, followed by the free application of escharotics. The incisions are to be carried deep, but should not penetrate into the healthy textures, as they are only required to enable the caustics to act more freely. DELPECH says, that we must endeavour to place a healthy slough betwixt the diseased and sound parts, by freely applying caustics, or even the actual cautery, first making incisions through the diseased parts, or even removing portions of the slough, if necessary.

RAYER gives minute directions for the application of the caustics, which he assures us, if employed in the first stage, when the vesicle only has formed, will frequently put a stop to the future progress

of the disease. If, however, it be found that the caustic has not acted powerfully enough, and that the disease has gone on to the formation of an areola, the caustic is to be still more freely applied, incisions being previously made, if necessary.

With regard to the general or constitutional treatment, depletion is universally disapproved of; and DELPECH mentions cases in which he conceives the patients' lives to have been lost from the employment of venesection in the first stages, under the mistaken idea of the disease being erysipelas. The remarks already made as to the necessity of husbanding the strength against the exhausting processes of the latter stages of Carbuncle, apply *a fortiori* to the disease now under consideration. Most authors recommend the employment of cordials during all its stages, and the typhoid nature of the symptoms seems to warrant the practice.

BOYER and others seem to place great reliance on the use of bark as an antiseptic and tonic. That it may be of some advantage as a tonic I have no doubt, particularly during the process of recovery; but for checking the gangrene, I should be disposed to place reliance chiefly on the local remedies, and on stimulants of a more decided character than cinchona.

BOYER observes, that if gastro-enteritic symptoms come on, an emetic should be given previously

to the administration of the bark. If diarrhœa or dysentery supervene, as is frequently the case, the use of a gentle laxative, such as castor-oil, to free the intestines from irritating matters, followed up by the administration of opiates, may probably be required. Purging is certainly uncalled for ; but intestinal derangement would probably be less frequent, if gentle laxatives were employed in the commencement of the disease ; and we may perhaps hazard the conjecture, that it is an unwillingness on the part of the French to administer laxatives arising from a misapplication of the Broussaian doctrines, that gives rise to the frequency among them of such gastro-enteritic complications, in this as in many other diseases.

FINIS.